

09010-103WO1 SEQ ID listing.txt

SEQUENCE LISTING

<110> Callen, Walter

<120> XYLOSE ISOMERASES, NUCLEIC ACIDS ENCODING THEM AND METHODS FOR MAKING AND USING THEM

<130> 09010-103WO1

<140> not assigned

<141> 2003-10-21

<150> US 60/424,649

<151> 2002-11-06

<160> 4

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1335

<212> DNA

<213> unknown

<220>

<223> obtained from an environmental sample

<400> 1

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catctgaagt	tctcagttgc	attctggcac	accttcgtga	acgaggggag	agatcccctc	180
ggagatccaa	cagccgaccg	accctggaac	aagtacacag	accctatgga	caaagccttt	240
gcaagggtgg	acgccctctt	tgaattctgt	gaaaaactca	acatcgagta	cttctgtttt	300
cacgacaggg	acatagctcc	tgaaggaaag	actctgaggg	agacaaacaa	gatcctggac	360
aaggctcgtg	agaggatcaa	agagagaatg	aaagacagca	acgtaaaact	cctctggggg	420
actgcgaatc	tcttttctca	tccaagggtac	atgcacggtg	cggcgacaac	ctgtagtgct	480
gatgtcttcg	cctacgcggc	agcacaggtg	aagaaaagccc	ttgagatcac	aaaagagctt	540
ggaggagaag	ggtacgtctt	ttggggtgga	agagaagggg	acgagacact	cctcaacacg	600
gatctggatc	ttgaacttgg	aaacctcgct	cgcttcctca	gaatggctgt	ggattacgca	660
aagaagatag	gtttcaacgg	ccagtttctc	atcgagccta	aaccgaagga	accaacgaag	720
catcagtacg	acttcgatgt	tgcgacggct	tacgccttcc	tgaagagtca	cggtctcgat	780
gagtatttca	aattcaacat	cgaagcgaac	catgccacac	ttgctggtca	caccttccag	840
cacgaactga	ggatggcaag	aattcttgga	aaactcggca	gcacgcgacg	gaaccagggg	900
gaccttctgc	tcggctggga	caccgaccag	ttcccaacaa	acgtctacga	cacaactctt	960
gccatgtatg	aagtgataaa	agcgggtggg	tttacaanaa	gtggtctcaa	cttcgatgca	1020
aaggtgagaa	gagcttctta	caaggtggaa	gatctcttca	tcgggcacat	agcaggaatg	1080
gatactttcg	cactcggttt	caaaatagcc	cacaaacttg	taaaagacgg	tgtgttcgac	1140
aagttcattg	aagaaaaata	caaaagtttc	agagagggca	tcggaaaaga	gatcgttgaa	1200
ggaaaggcag	atthtgaaaa	gctggaaagct	tatataatag	acaaggaaga	gatggagctt	1260
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<210> 2

<211> 444

<212> PRT

<213> unknown

<220>

<223> obtained from an environmental sample

<400> 2

Met	Thr	Glu	Phe	Phe	Pro	Glu	Ile	Pro	Lys	Ile	Gln	Phe	Glu	Gly	Lys
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Glu	Ser	Thr	Asn	Pro	Phe	Ala	Phe	Lys	Phe	Tyr	Asp	Pro	Asn	Glu	Val
			20					25					30		
Ile	Asp	Gly	Lys	Pro	Leu	Lys	Asp	His	Leu	Lys	Phe	Ser	Val	Ala	Phe

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Trp His 35 Thr Phe Val Asn 40 Glu Gly Arg Asp Pro Phe 45 Gly Asp Pro Thr
 50 55 60
 Ala Asp Arg Pro Trp Asn Lys Tyr Thr Asp Pro Met Asp Lys Ala Phe
 65 70 75 80
 Ala Arg Val Asp Ala 85 Leu Phe Glu Phe Cys 90 Glu Lys Leu Asn Ile Glu
 95
 Tyr Phe Cys Phe 100 His Asp Arg Asp Ile 105 Ala Pro Glu Gly Lys Thr Leu
 110
 Arg Glu Thr 115 Asn Lys Ile Leu Asp 120 Lys Val Val Glu Arg Ile Lys Glu
 125
 Arg Met Lys Asp Ser Asn Val 135 Lys Leu Leu Trp Gly Thr Ala Asn Leu
 140
 Phe Ser His Pro Arg Tyr 150 Met His Gly Ala 155 Thr Thr Cys Ser Ala
 160
 Asp Val Phe Ala Tyr 165 Ala Ala Ala Gln Val 170 Lys Lys Ala Leu Glu Ile
 175
 Thr Lys Glu Leu 180 Gly Gly Glu Gly Tyr 185 Val Phe Trp Gly Gly Arg Glu
 190
 Gly Tyr Glu Thr 195 Leu Leu Asn Thr 200 Asp Leu Asp Leu Glu Leu Gly Asn
 205
 Leu Ala Arg Phe Leu Arg Met 215 Ala Val Asp Tyr Ala Lys Lys Ile Gly
 220
 Phe Asn Gly Gln Phe Leu 230 Ile Glu Pro Lys Pro 235 Lys Glu Pro Thr Lys
 240
 His Gln Tyr Asp Phe 245 Asp Val Ala Thr Ala Tyr Ala Phe Leu Lys Ser
 255
 His Gly Leu Asp Glu Tyr Phe Lys 265 Phe Asn Ile Glu Ala Asn His Ala
 270
 Thr Leu Ala Gly His Thr Phe Gln His Glu Leu Arg Met Ala Arg Ile
 285
 Leu Gly Lys Leu Gly Ser Ile 295 Asp Ala Asn Gln Gly Asp Leu Leu Leu
 300
 Gly Trp Asp Thr Asp Gln 310 Phe Pro Thr Asn Val Tyr Asp Thr Thr Leu
 320
 Ala Met Tyr Glu Val 325 Ile Lys Ala Gly Gly Phe Thr Lys Gly Gly Leu
 335
 Asn Phe Asp Ala Lys Val Arg Arg Ala 345 Ser Tyr Lys Val Glu Asp Leu
 350
 Phe Ile Gly His Ile Ala Gly Met Asp Thr Phe Ala Leu Gly Phe Lys
 365
 Ile Ala His Lys Leu Val 375 Lys Asp Gly Val Phe Asp Lys Phe Ile Glu
 380
 Glu Lys Tyr Lys Ser Phe 390 Arg Glu Gly Ile Gly Lys Glu Ile Val Glu
 400
 Gly Lys Ala Asp Phe 405 Glu Lys Leu Glu Ala Tyr Ile Ile Asp Lys Glu
 415
 Glu Met Glu Leu Pro Ser Gly Lys Gln 425 Glu Tyr Leu Glu Ser Leu Leu
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 Asn Ser Tyr 435 Ile Val Lys Thr Ile 440 Ser Glu Leu Arg

<210> 3
 <211> 1335
 <212> DNA
 <213> unknown

<220>
 <223> obtained from an environmental sample

<400> 3
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 catttgaaat tctccgttgc tttctggcac acttttgtaa acgaaggctc agatcccttc 180
 ggtgaccca ctgctgaaag accctggaac aagtattcgg atcccatgga caaagcggtt 240
 gcaagagtgg atgctttatt cgaattctgt gagaaactca atattgaata cttttgtttt 300
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gatgtttttg	catacgctgc	tgcacagggtg	aaaaaagcgt	tggagattac	gaaggaactt	540
ggaggagaag	gatatgtttt	ttggggcggt	agagaaggat	acgaaacctt	gctcaacacg	600
gatttgggat	tggaaactcga	aaacctcgcg	aggttcctca	gaatggccgt	agagtacgca	660
aagaagatag	gttttgatgg	acagttcctc	atagaaccca	aaccaaaaga	accacaaaaa	720
catcagtagc	atttcgacgt	agcgaccgca	tacgccttct	tgaaaactca	cgatttggat	780
gaatacttca	agttcaacat	agaagctaata	cacgcaacac	tcgctgggtca	tactttccag	840
catgaattga	gaatggccag	aatcctcggg	aaattcggaa	gtatcgacgc	aaatcaaggc	900
gatcttctgt	tgggatggga	caccgatcaa	tttccaacga	acgtatacga	tacaactctt	960
gccatgtacg	aggttataaa	agcagggggt	ttcacaaaag	gtggtctcaa	cttcgacgcc	1020
aaagttagac	gtgcttctta	caaggtagag	gatctcttca	tcgggcatat	agtaggaata	1080
gacactttcg	cactcgggtt	caagatagcc	tacaaacttg	taaaagacgg	cgtatttcgac	1140
agattcgttg	aggaaaaata	cagaagtttc	agagaaggta	ttggaaaaga	aatattggaa	1200
ggaaaagcag	atittgaaaa	actagaatcg	tatataatag	acaaagaaga	tgttgaactt	1260
ccatctggaa	aacaggagta	tcttgaaagt	ttgctcaaca	gctatatcgt	gaagaccgta	1320
tcagaactga	ggtga					1335

<210> 4
 <211> 444
 <212> PRT
 <213> unknown

<220>
 <223> obtained from an environmental sample

<400> 4

Met	Thr	Glu	Phe	Phe	Pro	Glu	Ile	Pro	Lys	Ile	Gln	Phe	Glu	Gly	Lys
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Glu	Ser	Asn	Asn	Pro	Leu	Ala	Phe	Lys	Phe	Tyr	Asp	Pro	Asp	Glu	Val
			20					25					30		
Ile	Asp	Gly	Lys	Pro	Leu	Lys	Asp	His	Leu	Lys	Phe	Ser	Val	Ala	Phe
		35					40					45			
Trp	His	Thr	Phe	Val	Asn	Glu	Gly	Arg	Asp	Pro	Phe	Gly	Asp	Pro	Thr
	50				55						60				
Ala	Glu	Arg	Pro	Trp	Asn	Lys	Tyr	Ser	Asp	Pro	Met	Asp	Lys	Ala	Phe
65					70					75				80	
Ala	Arg	Val	Asp	Ala	Leu	Phe	Glu	Phe	Cys	Glu	Lys	Leu	Asn	Ile	Glu
				85					90					95	
Tyr	Phe	Cys	Phe	His	Asp	Arg	Asp	Ile	Ala	Pro	Glu	Gly	Lys	Thr	Leu
			100					105					110		
Arg	Glu	Thr	Asn	Lys	Ile	Leu	Asp	Lys	Val	Val	Glu	Lys	Ile	Lys	Glu
		115					120					125			
Arg	Met	Lys	Glu	Ser	Asn	Val	Lys	Leu	Leu	Trp	Gly	Thr	Ala	Asn	Leu
	130				135						140				
Phe	Ser	His	Pro	Arg	Tyr	Met	His	Gly	Ala	Ala	Thr	Thr	Cys	Ser	Ala
145					150				155					160	
Asp	Val	Phe	Ala	Tyr	Ala	Ala	Ala	Gln	Val	Lys	Lys	Ala	Leu	Glu	Ile
				165					170					175	
Thr	Lys	Glu	Leu	Gly	Gly	Glu	Gly	Tyr	Val	Phe	Trp	Gly	Gly	Arg	Glu
			180					185					190		
Gly	Tyr	Glu	Thr	Leu	Leu	Asn	Thr	Asp	Leu	Gly	Leu	Glu	Leu	Glu	Asn
		195					200					205			
Leu	Ala	Arg	Phe	Leu	Arg	Met	Ala	Val	Glu	Tyr	Ala	Lys	Lys	Ile	Gly
	210					215					220				
Phe	Asp	Gly	Gln	Phe	Leu	Ile	Glu	Pro	Lys	Pro	Lys	Glu	Pro	Thr	Lys
225					230				235					240	
His	Gln	Tyr	Asp	Phe	Asp	Val	Ala	Thr	Ala	Tyr	Ala	Phe	Leu	Lys	Thr
				245					250					255	
His	Asp	Leu	Asp	Glu	Tyr	Phe	Lys	Phe	Asn	Ile	Glu	Ala	Asn	His	Ala
			260					265					270		
Thr	Leu	Ala	Gly	His	Thr	Phe	Gln	His	Glu	Leu	Arg	Met	Ala	Arg	Ile
		275					280					285			
Leu	Gly	Lys	Phe	Gly	Ser	Ile	Asp	Ala	Asn	Gln	Gly	Asp	Leu	Leu	Leu
	290					295					300				
Gly	Trp	Asp	Thr	Asp	Gln	Phe	Pro	Thr	Asn	Val	Tyr	Asp	Thr	Thr	Leu
305					310					315					320

09010-103W01 SEQ ID listing.txt

Ala	Met	Tyr	Glu	Val	Ile	Lys	Ala	Gly	Gly	Phe	Thr	Lys	Gly	Gly	Leu
				325					330					335	
Asn	Phe	Asp	Ala	Lys	Val	Arg	Arg	Ala	Ser	Tyr	Lys	Val	Glu	Asp	Leu
			340					345					350		
Phe	Ile	Gly	His	Ile	Val	Gly	Ile	Asp	Thr	Phe	Ala	Leu	Gly	Phe	Lys
		355					360					365			
Ile	Ala	Tyr	Lys	Leu	Val	Lys	Asp	Gly	Val	Phe	Asp	Arg	Phe	Val	Glu
	370					375					380				
Glu	Lys	Tyr	Arg	Ser	Phe	Arg	Glu	Gly	Ile	Gly	Lys	Glu	Ile	Leu	Glu
	385				390					395					400
Gly	Lys	Ala	Asp	Phe	Glu	Lys	Leu	Glu	Ser	Tyr	Ile	Ile	Asp	Lys	Glu
				405					410					415	
Asp	Val	Glu	Leu	Pro	Ser	Gly	Lys	Gln	Glu	Tyr	Leu	Glu	Ser	Leu	Leu
			420					425					430		
Asn	Ser	Tyr	Ile	Val	Lys	Thr	Val	Ser	Glu	Leu	Arg				
		435					440								